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TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

September 26, 2008

Mr. Philip Allen
USEPA Region 6
Superfund Division (6SF-AP)
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

Re: Star Lake Canal Federal Superfund Site, Port Neches, Texas
Revised Draft Tier 2 Remedial Investigation Work Plan
Reference Number: SUP149

Dear Mr. Allen:

The Texas Commission on Environmental Quality (TCEQ) received and has reviewed the above referenced document submitted by Conestoga-Rovers & Associates for the Star Lake Canal Federal Superfund Site. Comments generated from that review are included below for your consideration. Comments from the TCEQ Ecological Risk Assessor and the Natural Resource Trustees regarding their review of this document in reference to the Baseline Ecological Risk Assessment are included as a separate enclosure to this letter.

1. The TCEQ and the Environmental Protection Agency (EPA) conducted a Site Inspection on September 20, 2008, as part of the Hurricane Ike response to assess possible storm damage to superfund sites. It was determined that Star Lake Canal rose approximately ten feet, overflowed the banks, and flooded a business and some houses along Old Atlantic Road. TCEQ and EPA representatives spoke with Mr. Peter MacCallum of 4934 Old Atlantic Road and were informed that he had approximately 2 ½ feet of water in his house. Mr. MacCallum's house is the closest residence to the site. Mr. MacCallum said the rising water also flooded the next few houses up Old Atlantic Road. Please re-evaluate the Conceptual Site Model (CSM) in context of these events and determine whether additional exposure pathways are present and/or should be considered complete.
2. The CSM presented in Figure 4 indicates that the dermal contact and ingestion of sediments for industrial worker exposure pathways are considered incomplete in Gulf States Utility Canal, Jefferson Canal Upstream, and Jefferson Canal Downstream. Please clarify why these exposure pathways are considered incomplete or revise the CSM to indicate that they are complete.
3. The analytical results obtained from samples taken in the Former Star Lake Area of Interest (AOI) may need to be evaluated for both soil and sediment exposure scenarios

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depending on whether the area is dry, inundated, or periodically both. Please document the rationale for determining whether a soil exposure scenario exists in this AOI, and revise the CSM to reflect any added soil exposure pathways.

4. Please revise the CSM to include an evaluation of trespasser exposure scenarios for all AOIs.
5. Please revise Section 2.2, Data Quality Objectives, to include decision statements for each complete exposure pathway added to the CSM as a result of the above comments.
6. Table 2 of the Work Plan provides Limiting Human Health Criteria (LHHC) values for sediment protective of ingestion of saltwater fish and sediment protective of ingestion of freshwater fish. As stated in the response to previous comment 1b, these LHHC values are derived from equations specified in Table 5-3 of RG-366/TRRP-24. However, the Work Plan does not explain how these values were calculated. Please provide the parameters assumptions that were used to calculate the LHHC values included in Table 2. Please document the source of those parameters and assumptions to facilitate our review.

Should you need additional information or wish to discuss this letter, please call me at (512) 239-3429 or you may contact me by email at ssetteme@tceq.state.tx.us.

Sincerely,



Scott Settemeyer, P.G., Project Manager
Team 1, Environmental Cleanup Section II
Remediation Division
Texas Commission on Environmental Quality

DSS/ok


Enclosure

Texas Commission on Environmental Quality

INTEROFFICE MEMORANDUM

To: Sarah Schreier, Project Manager;
Environmental Cleanup II Section,
Remediation Division

Date: September 25, 2008

From:  Larry Champagne, Ecological Risk Assessor; Technical Support Section,
Remediation Division

Subject: Star Lake Canal NPL Superfund Site
Revised Draft Tier 2 RI Work Plan
August 2008

The Natural Resource Trustees and I have completed our review of the subject document for this Site and have the comments below. As you may recall, there were some issues (e.g., ER-M quotient methodology, sediment-to-fish pathway) that were discussed at our June 5, 2008 meeting that were deferred to this revised draft work plan for elaboration and clarification. As this review was our first opportunity to evaluate the expanded responses to those concerns expressed verbally during the meeting, these issues resulted in some of our more detailed comments. Comments regarding weighting the lines of evidence, the list of PCB congeners, and single vs. multiple fish species for tissue collection need to be resolved prior to Tier 2 sampling, with the remainder needing to be addressed prior to BERA development.

General Comments:

1. Concern exists regarding the timing of the Preliminary Investigation and the Tier 2 sampling event due to the potential effects of Hurricane Ike. Given that tissue is a significant medium targeted for sampling, movement of organisms into or out of the Site due to Hurricane Ike could result in a lack of equilibrium between contaminants in media and collected tissue. Coordination should occur between the project team in determining an appropriate sampling schedule.
2. We are also concerned that there appear to be inconsistencies between what was stated would be done in the work plan according to the June 5, 2008 Meeting Summary and what is actually presented in the revised draft work plan. Some, but not all, of these inconsistencies are discussed in the specific comments that follow. It is suggested that the Star Lake Canal responsible parties and their consultants review the summary and revise the work plan text accordingly.

Specific Comments:

1. P. 15, Section 2.2.2 Step 2 Identify the Goal of the Study: Decision Problem No. 1 states that the 95% UCL tissue concentration for fish collected from the Site will be compared to literature-based effects levels. This evaluation, or any type of evaluation of the fish community, should not be performed on a site-wide basis in order to reflect their exposure, including sensitive life stages. Note the decision problem assumes that appropriate tissue-based effects levels are available, even though the work plan does not provide any such values and we have previously indicated their availability is unlikely.
2. P. 15, Section 2.2.2 Step 2 Identify the Goal of the Study: Decision Problem No. 3 states a Toxicity Unit > 2 would indicate potential risk to the benthic community and would warrant further consideration. Such an interpretation is inconsistent with EPA (2003) and should be revised to reflect this guidance. We note that Driscoll and Burgess (2007) state that a TU > 2 may indicate an effect of 50% mortality for the amphipod *Rhepoxinus abronius*. Such a level of toxicity is not an appropriate breakpoint for determining if further consideration is warranted. The decision problem needs to be restated to conform to text in the source guidance (EPA, 2003), which uses TU < 1 and > 1 as the break between being protective of the benthic community and a level at which sensitive benthic organisms are unacceptably affected. Further, this work plan contains text on Page 44 which is itself inconsistent with the proposed decision problem.
3. P. 16, Section 2.2.2 Step 2 Identify the Goal of the Study: Decision Problem No. 5 states that if a COPEC concentration in surface water results in a hazard ratio > 1 , then potential risks to aquatic invertebrates warrant further evaluation. Most of the TCEQ surface water benchmarks are either state-adopted water quality criteria or were derived from methodologies outlined in the water quality standards (30 TAC §307) and are designed to be protective of the aquatic community, not just invertebrates. The text should be revised accordingly.
4. P. 20, Section 2.2.5 – Step 5 Development of the Analytical Approach and/or Appropriate Method: According to the Meeting Summary (Pages 3 and 4), Star Lake Canal responsible parties agreed to evaluate risk to benthic invertebrates on a point-to-point basis rather than using a 95% UCL. However, the work plan text here uses the term “exposure point concentration” in the discussion of evaluating risk to benthics, but also states that a 95% UCL will not be used. Although we believe that this text equates with the point-to-point commitment and that this is just a semantics issue, some people use “exposure point concentration” to mean the statistically manipulated “representative concentration”; therefore, clarification is needed. (See also the related comment regarding the Mean ERM Quotient).
5. P. 21, Section 2.2.5 – Step 5 Development of the Analytical Approach and/or Appropriate Method: The text in the last paragraph states that if the lesser of the

95% UCL and MOC does not exceed the Action Level (ecological benchmark for the BERA), then that COPEC does not pose an unacceptable risk for that medium. Since the ecological benchmarks are not designed to be protective of wildlife, bioaccumulative COPECs will need to be further evaluated regardless of their concentrations.

6. P. 40-42, Section 4.1.2.1 Assessment and Measurement Endpoints (Lines of Evidence): In the Meeting Summary (Pages 4 and 6) a commitment is made to assign priority (i.e., weighting) to the lines of evidence in the revised work plan, but this did not occur. In order to minimize the interpreting of data differently between the stakeholders, an agreement of how these lines of evidence are weighted is needed before the data is presented.
7. P. 42, Section 4.1.2.1 Assessment and Measurement Endpoints (Mean ERM Quotients): The intended use of mean ERM quotients remains unclear. The June 5, 2008 Meeting Summary (Page 6) stated that the Long and McDonald, 1998 methodology would be researched and the methodology clarified in the revised draft Work Plan; however, such clarification is not provided. Our understanding of the mean ERM quotient methodology is that it is intended to evaluate exposure to a mixture of contaminants and is calculated on an individual sample basis. Discussion during the June 5, 2008 meeting indicated that responsible party representatives intended to apply the mean ERM quotient approach on a contaminant-by-contaminant basis resulting in a mean quotient representing a spatial area containing multiple sample locations, without consideration of the effects of exposure to contaminant mixtures. This is inconsistent with our application of the methodology in the past, as well as inconsistent with our understanding of the scientific literature. Further, the statement that a mean ERM quotient will be provided for each AOI is inconsistent with the commitment to evaluate the benthic community on a point-by-point basis. Please clarify in detail.
8. P. 45, Section 4.1.2.1 Assessment and Measurement Endpoints (Sediment-to-Fish Pathway): Text indicates the sediment-to-fish pathway will be evaluated using a tissue residue approach based upon either predicted body burden or analytical results of tissue analysis. We have previously raised concerns regarding the ability of this approach to evaluate PAHs due to their metabolism by fish into other toxic PAH compounds, as well as the availability of relevant tissue effects levels to evaluate PAH exposure to benthic fish. The June 5, 2008 Meeting Summary states that if appropriate effects data is not available, an alternate approach will be utilized to evaluate the sediment-to-fish pathway. The revised work plan contains neither proposed tissue residue based effects levels; an identification of the analytical limits necessary for tissue data to allow comparison to effects levels (i.e., Appendix A) or an alternate approach for evaluating the sediment-to-fish pathway. The Trustees have previously provided via electronic mail, criteria for evaluation of effects levels to determine their appropriateness. Be aware that a risk management recommendation for sediments will be flawed (i.e., unsupportable) without risk characterization of significant relevant

pathways. Proposed tissue effects levels should be provided, as well as an alternate approach for those chemicals of concern without acceptable effects levels.

9. P. 45, Section 4.1.2.1 Assessment and Measurement Endpoints (Aqueous Dwelling Organisms): Recall that the Tier 1 RI sampling effort resulted in water data representative of high flow conditions and the Tier 2 sampling event will target low flow conditions. When it comes to evaluation of fish and aquatic invertebrates using surface water data, these two flow conditions should be evaluated separately prior to any grouping of the data because the two sample events are expected to represent significantly different flow regimes.
10. P. 45, Section 4.1.2.1 Assessment and Measurement Receptors (Upper Trophic Level Receptors): It is unclear why proposed Lowest Observed Adverse Effects Levels (LOAELs) are not provided in the Tier 2 Work Plan. Such an approach only increases the potential for regulatory comments on the draft BERA and misses an opportunity to get regulatory input earlier in the process. Please provide proposed LOAEL values, as well as a description of the process to identify a mid-range toxicity reference value.
11. P. 47, Section 4.1.2.3 Refinement of COPECS: No basis is provided for the abbreviated list of PCB congeners proposed for analysis, which appears to be limited to consist of coplanar PCBs. The logic of evaluating the degree of weathering of Arochlors by analyzing for coplanar PCBs is unclear. The June 5th Meeting Summary (Page 5) commits to evaluating the NOAA Mussel watch PCB congener list, available at - http://ccma.nos.noaa.gov/stressors/pollution/nsandt/mw_contaminants.html Such an evaluation is not apparent in the revised work plan. This issue needs to be resolved prior to the Tier 2 sampling effort. (Also see the related text on work plan pages 11, 59, and 63.)
12. P. 69, Section 7.3.6.3 Tissue Sample Collection Rationale and Procedures (BERA Fish Tissue Collection) and Table 11 Tissue Investigation: In the Meeting Summary (Page 5) the responsible parties agreed to sample a single receptor species (except insects) in the Tier 2 RI, but the text still states that multiple fish species of two different size groups will be collected. The text should be revised to state that when possible, specimens of a single fish species will be collected per sample.
13. Table 3 TCEQ Ecological Benchmarks: The units for the constituents need to be provided.
14. Table 5 Exposure Factors for BERA: A spot check of the food and water ingestion rates (including mallard, marsh wren, raccoon, and robin) indicates numerous inconsistencies. Also, we have previously noted in our comments that the robin's % soil in diet appears to be switched with its % water in diet. A

quality control check needs to be performed for the table of exposure factors as well as verification that values are correctly entered into the model used to determine total dose. The results of this review need to be reported in the response to comments.

15. Table 8 USEPA Ecological Sediment Benchmarks for the Development of Toxicity Units: The first line under the "Notes" needs to be removed as the reference to TCEQ benchmarks is irrelevant.

Citations

Driscoll, S.B. and R.M. Burgess. 2007. An Overview of the Development, Status, and Application of Equilibrium Partitioning Sediment benchmarks for PAH Mixtures. Human and Ecological Risk Assessment, Vol. 13, No. 2, pp. 286-301.

EPA. 2003. Procedures for the Derivation of Equilibrium Partitioning Sediment Benchmarks (ESBs) for the Protection of Benthic Organisms: PAH Mixtures. U.S. Environmental Protection Agency, Office of Research and Development, Washington, DC. EPA/600/R-02/013.

Long, E.R. and D.D. McDonald. 1998. Perspective: Recommended Uses of Empirically Derived, Sediment Quality Guidelines for Marine and Estuarine Ecosystems. Human and Ecological Risk Assessment, Vol. 4, No. 5, pp. 1019-1039.